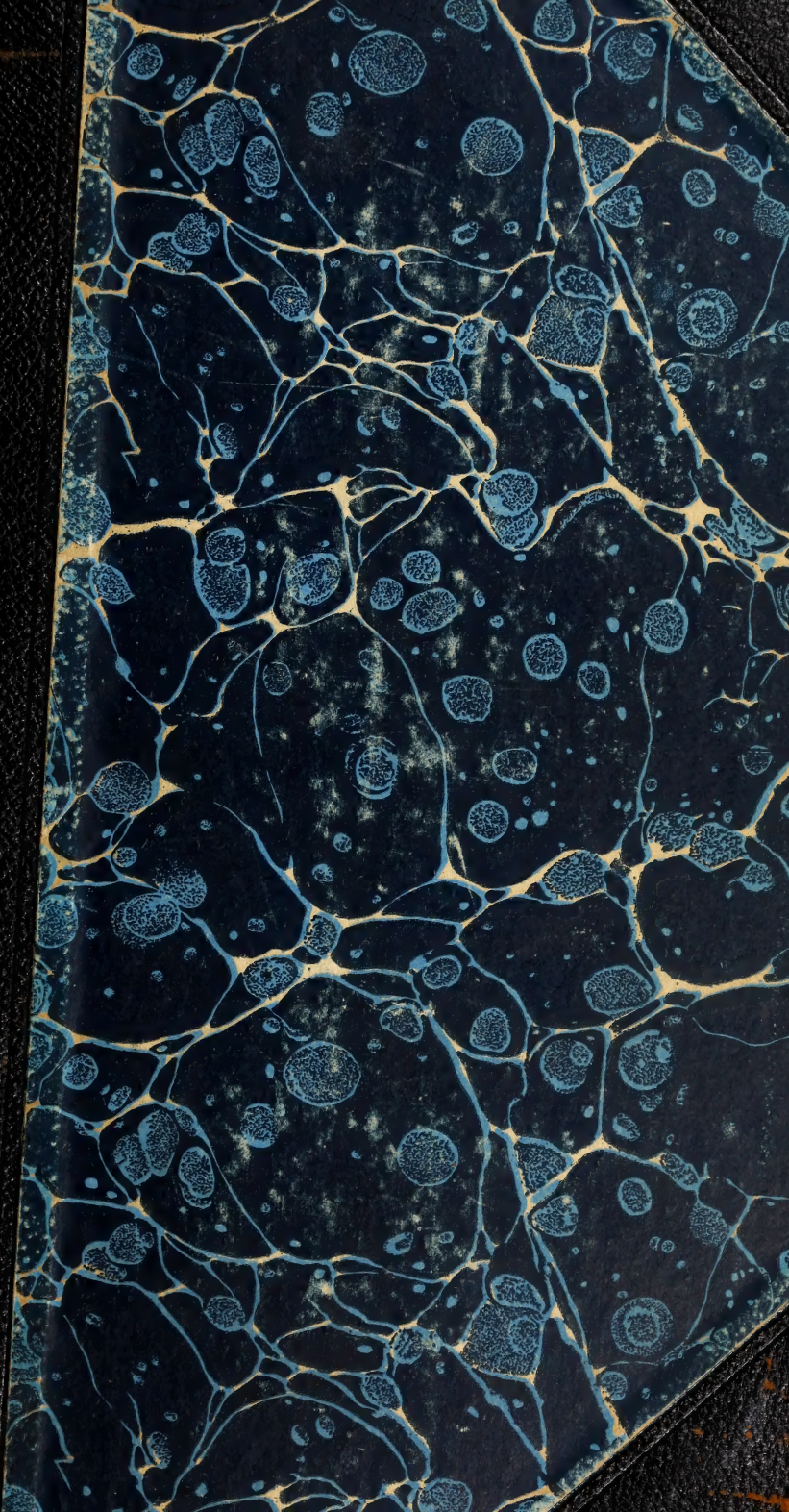


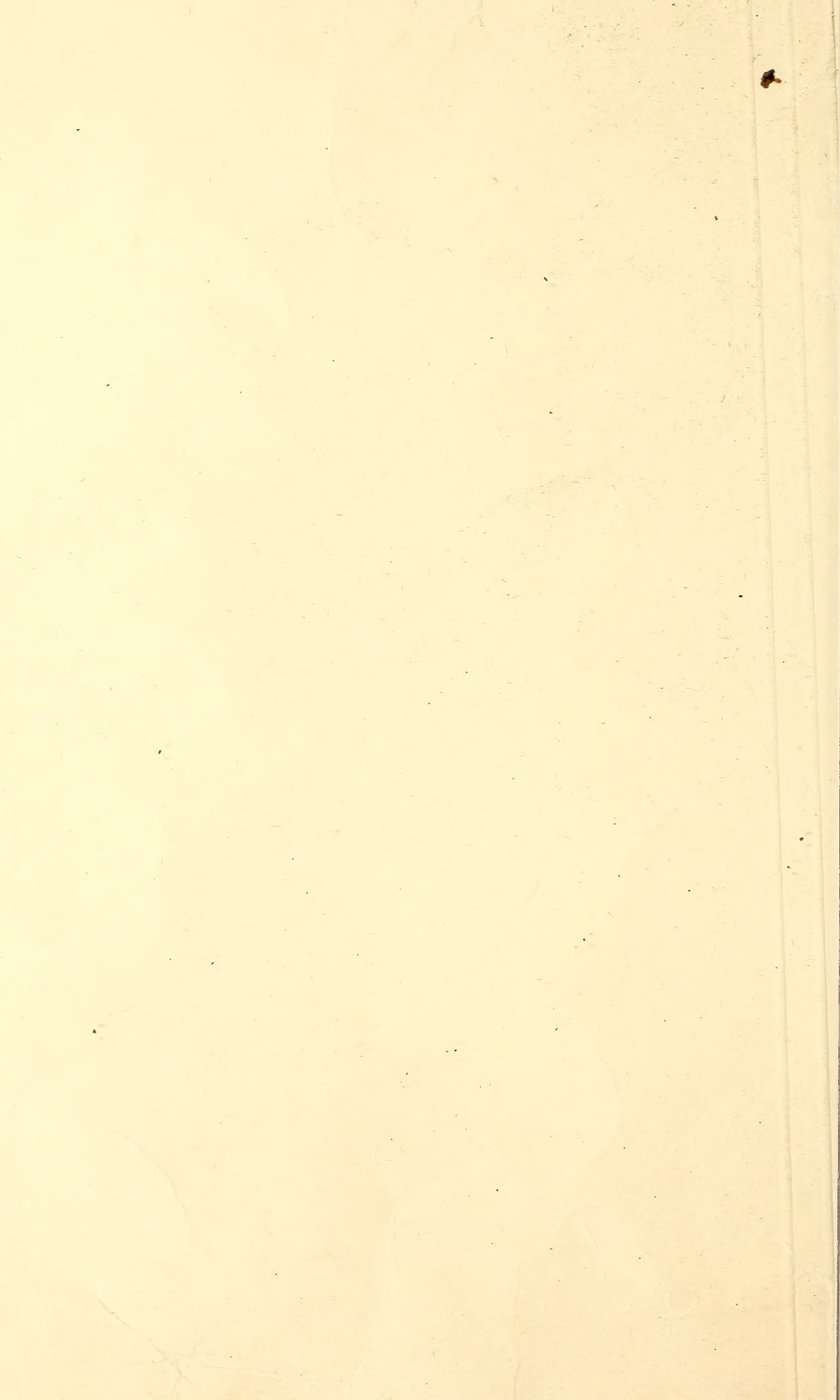


SHOUT
SHARE IT



Historic, archived document

Do not assume content reflects current
scientific knowledge, policies, or practices.



UNITED STATES DEPARTMENT OF AGRICULTURE



BULLETIN No. 1006

Contribution from the Bureau of Markets and Crop Estimates.

H. C. TAYLOR, Chief



Washington, D. C.



November 12, 1921

ACCOUNTING RECORDS FOR SAMPLING APPLES BY WEIGHT.

By J. H. CONN, *Assistant in Market Business Practice*, and A. V. SWARTHOUT, *Investigator in Market Business Practice*.

CONTENTS.

	Page.		Page.
Introduction.....	1	Statements and ledger accounts.....	8
The forms and their use.....	2	Table of reciprocals.....	8
Method of operation.....	4	Forms.....	10
Condensed operating schedule.....	7	Progress chart.....	12

INTRODUCTION.

Throughout the Pacific Northwest community packing of apples is rapidly growing in popularity. This service is performed in thoroughly modern packing houses equipped with up-to-date machinery and labor-saving devices, and the packing room is separate from that used for storage or other purposes.

It is the usual custom to pack the fruit of each grower separately and to record the results of the "pack-out" to the credit of the growers' accounts. It is imperative, therefore, that the identity of the ownership of the fruit be maintained on the warehouse floor until a complete tally has been made of the various grades and sizes, and the proper credit has been entered on the growers' accounts. Such a plan necessitates a very carefully devised system of warehouse-floor checking as a safeguard against confusing the ownership of the fruit prior to its being packed. This is particularly true during a season in which the tonnage is extremely heavy and the loose fruit storage space is limited. During the rush of business in the fall of the year, shippers are often compelled to pile fruit to the ceiling in their efforts to provide storage space for all deliveries and still retain the identity of each growers' fruit until it is properly recorded.

Within recent years several fruit-shipping organizations have adopted a system of sampling apples by weight. This system is

unique in the scheme employed to establish a record of the various grades and sizes of apples packed for each grower. The aim of this method is to accelerate the movement of the fruit through the packing rooms and to avoid the expense of repiling and checking that so frequently arises in attempting to retain the identity of each growers' lot of loose fruit on the packing-house floor. A sample is selected from each lot of fruit received. This sample is graded and sized, and a record made of the weight of each grade and size in the sample. The percentage relation of the total weight of the sample to the total weight of the lot is then applied to ascertain the weight of the various grades and sizes that make up the load, and the grower is given credit for the total weight, classified as to grades and sizes.

THE FORMS AND THEIR USE.

Accounting forms have been devised for use in community packing houses operating in the usual way. A complete description of those forms may be found in United States Department of Agriculture Bulletin 590, A System of Accounting for Fruit-Shipping Organizations. Ample provision has been made in them for the adequate handling of the business performed by most of the fruit-shipping institutions. However, with the introduction of the sample test plan as a means of determining the various grades and sizes packed for each grower's account, a condition has been created which is entirely different from that existing in other organizations. For this reason special forms are required.

All forms described in Bulletin 590 can be used by packing houses that sample fruit by the weight method, with the exception of the Loose Fruit Receipt Form No. 9, Packed Fruit Receipt Form No. 11, Register of Receipts Form No. 12, Reconciliation of Fruit Deliveries Form No. 13, and Account Sales Form No. 21. To take the place of these, five new forms are presented in this bulletin.

The new forms have been devised with the view of relieving the sample test clerk of all unnecessary clerical work so that the weighing of each sample may be carried on without undue interruptions or delays.

THE LOOSE-FRUIT RECEIPT.

The loose fruit receipt (Form No. 1) is made out in triplicate; the original copy is given to the grower, the duplicate tissue copy is sent to the office, and the triplicate cardboard copy follows the sample through the test room. A small tin holder is attached to one of the boxes of the sample and in this the triplicate of the receipt is inserted. This card serves as a means of identification of the sample until it has been graded.

THE SAMPLED-FRUIT RECEIPT.

The sampled-fruit receipt (Form No. 2) is made in duplicate; the original is given to the grower and the duplicate is retained in the office files. This form shows the weight of each sample after classification into grade and size groups, and the total weight of the load similarly classified.

Considerable care and attention are necessary in the preparation of the sampled-fruit receipt, particularly in recording the test weights. This record is the original entry of the number of pounds of fruit of the various grade and size groups credited to the grower's account, and all future computations are based on these figures.

THE REGISTER OF SAMPLED-FRUIT RECEIPTS.

The register of sampled-fruit receipts (Form No. 3) is made in duplicate. The original copy serves as an office record, and the duplicate (further described as the reconciliation of fruit deliveries, Form No. 4) serves as a statement for the grower.

To facilitate posting, the register of receipts is placed on the upper part of the sheet occupied by the account sales form. This is done so that the clerical work entailed in determining the fruit contributed to the various pools may be reduced to a minimum by merely carrying down the totals.

Accounts are opened in the register of sampled-fruit receipts under the names of the various growers. One sheet is provided for each variety brought in by each grower. The receipts are posted daily, thus making available at all times a full and complete record of the quantity, grades, and sizes received for each grower's account.

THE RECONCILEMENT OF FRUIT DELIVERIES.

In order to avoid clerical work entailed in rectifying errors which may be found after pools have been closed, the reconciliation of fruit deliveries (Form No. 4) has been prepared. This form is the duplicate copy of the register of sampled-fruit receipts, and is arranged as a statement of the total amount of fruit packed for each grower, classified according to grades and sizes.

Growers are requested to compare carefully the figures on the reconciliation statement with the total quantity of fruit appearing on the sampled-fruit receipts held by them, and to report any discrepancies promptly.

Before issuing, these statements should be carefully checked with the sampled-fruit receipts so as to discover any errors in posting.

THE ACCOUNT SALES.

The account sales (Forms No. 5 and 5a) is drawn up in the form of a duplicating ledger statement; the original copy is retained in the

office and the duplicate copy forwarded to the growers for their information. The original copy of this form occupies the lower part of the sheet provided for the register of sampled-fruit receipts, the duplicate copy occupying the lower part of the sheet provided for the reconciliation of fruit deliveries. Perforated lines permit them to be separated easily.

As soon as all discrepancies have been reported and the proper corrections made on the reconcilements, the total weights are reduced to boxes and transferred to the account sales. The information shown on the account sales includes the classification of fruit by grades and sizes, net average prices per box (after all selling and handling charges have been deducted), and net returns for each variety of fruit.

METHOD OF OPERATION.

RECEIVING LOOSE FRUIT.

Fruit is delivered to the community packing house in open boxes without being sorted into grades or sizes. As each lot is unloaded, a loose fruit receipt (Form No. 1) is made out in triplicate. The original is given to the grower as evidence of the delivery of the fruit, the duplicate (tissue) copy is sent to the office for filing, and the triplicate (cardboard) copy is attached to one of the boxes of each sample by means of a small tin holder and serves as a means of identifying the sample in the test room. The office copy of each loose-fruit receipt is held in a temporary file awaiting the receipt of the triplicate cardboard copy used to identify the samples.

It is advisable to check over the numerical order of the receipts turned into the office each day by the sample clerk to be sure that none are missing. This is a very important practice and should be enforced rigidly as protection for the growers' account. To facilitate posting, receipts are then arranged alphabetically, according to growers' names. By referring to the temporary file, it is possible to determine at any time the quantity of fruit remaining in the sample room to be tested and also to determine the length of time samples are held before being tested.

The number of boxes selected as a sample from each load varies with the size of the load. It is usual to set aside 1 box in every 20 (about 5 per cent) as a fair test of each load of fruit delivered. No fixed quantity is required, as it is generally felt that, regardless of the size of the sample, an accurate test will be obtained. After attaching the triplicate of the loose fruit receipt to one box of the sample, it is trucked into the test room, and the remainder of the load is stacked with the unpacked fruit of the same variety.

SORTING AND RECORDING.

All results obtained by the test clerk in determining the net weights of each grade and size group contained in any one sample are recorded on the duplicate copy of the sampled-fruit receipt. From the triplicate of the loose-fruit receipt the net weight of the fruit, including the boxes, is transcribed on the sampled-fruit receipt (Form No. 2) in the space provided under the caption, Loose-fruit weights. The weights of the various grades and sizes contained in the sample are recorded on the sampled-fruit receipt under the caption, Test weights. These figures are then checked daily in the office as a safeguard against errors. To accelerate the sampling work, the test clerk records only the weights of each lot without working out any percentage figures. Several samples belonging to a grower are often combined and one test made of the combined lots, especially when the tests are small. At the close of each day all sampled-fruit receipts are sent to the office to be entered on the growers' accounts.

The work of ascertaining the net weights of each grade and size group must be very accurate and painstaking. To facilitate matters, the scales used in the sampling operations are fitted with beams giving the readings in pounds and decimal parts instead of ounces. The grading of samples is usually performed on a small model of the machines used in the general packing room.

As each day's sampled-fruit receipts are received in the office, the numbers are checked consecutively and a comparison made with the loose-fruit receipts held in the temporary file. The checking of the test clerks' computations on the duplicate copy of the sampled-fruit receipt is worthy of special emphasis and should be carefully performed. The percentage of test and the total weights of each grade and size group depend upon the accuracy of the test clerk's computations.

The following items on the duplicate sampled-fruit receipt should be carefully checked against like items appearing on the loose fruit receipt:

1. Net weight of fruit, boxes included.
2. Number of boxes containing fruit.

The following computations made by the test clerk and entered on the duplicate sampled-fruit receipt should be carefully checked:

1. Net weight of boxes delivered containing fruit (number of boxes times the arbitrary net weight of each box).
2. Net weight of fruit delivered (net weight of fruit, including boxes minus weight of boxes).
3. Net weight of each tested lot appearing under the caption Test weights (gross weight of fruit, including the bin minus the weight of the bin).
4. Total test weights.

COMPUTING THE GRADE AND SIZE GROUP WEIGHTS.

It is the duty of the office clerk in charge of receipts to ascertain what percentage the fruit in the sample is of the total fruit on the load and to compute the weights of the various grades and sizes. This percentage is found by dividing the total net weight of the sample by the net weight of the fruit on the load. For example:

Assume that 163.2 pounds is the net weight of the whole sample and that 4,000 pounds is the net weight of the load of fruit. To determine the percentage of test: 163.2 divided by 4,000 equals 4.08 per cent.

Having determined the percentage of test, it is a comparatively simple matter to compute the total weight of each grade and size in the lot from the results of the test, as reported by the test clerk under "Test weights" on the sampled-fruit receipt. This can be done either by dividing the test weights by the percentage of test, or by multiplying the test weight by the reciprocal of the percentage of test, as shown in the table on page 9.

Now, the percentage of test is 4.08 per cent. Suppose that the Extra Fancy (36-125) test weight is 50.2 pounds; Fancy (36-125) test weight, 75.6 pounds; "C" grade (36-163) test weight, 37.4 pounds. To compute the weights of the various grades in this size group by the percentage division method:

	Test weights.	Total weights.
Extra Fancy (36-125).....	50.2 pounds divided by 0.0408 equals	1,230.40 pounds.
Fancy (36-125).....	75.6 pounds divided by 0.0408 equals	1,852.94 pounds.
"C" (36-163).....	37.4 pounds divided by 0.0408 equals	916.66 pounds.
Total.....	163.2 pounds.....	4,000.0 pounds.

(In this method the percentage is expressed as hundredths, i. e., 0.04 is used instead of 4 per cent, hence there can never be less than two decimal places in the divisor.)

To determine the weights by the reciprocal-multiplier method: The reciprocal of 4.08 per cent test is 24.51 (see Table of reciprocals, p. 9).

	Test weights.	Total weights.
Extra Fancy (36-125).....	50.2 pounds times 24.51 equals	1,230.40 pounds.
Fancy (36-125).....	75.6 pounds times 24.51 equals	1,852.94 pounds.
"C" (36-163).....	37.4 pounds times 24.51 equals	916.66 pounds.
Total.....	163.2 pounds.....	4,000.00 pounds.

To facilitate the above computations the reciprocals are carried out only two decimal places and the last digit of the total weight is corrected as a means of obtaining a balance.

REGISTERING THE SAMPLED-FRUIT RECEIPTS.

The weights of the various grade and size groups appearing on the sampled-fruit receipts are entered daily on the register of sampled-

fruit receipts (Form No. 3). (The receipts should first be arranged in numerical order to be sure that none are missing, and then rearranged in alphabetical order to facilitate posting.) These entries should be checked back daily as a safeguard against errors in posting. If this practice is followed, the reconcilements can be forwarded to growers immediately at the close of the packing season, without further checking. At the conclusion of the packing season the weights appearing in the various grade and size groups are totaled and reduced to boxes. After this is done all records are in terms of boxes and the reconciliation of fruit delivered is ready to be sent to the growers. This should not be done, however, until the number of boxes of the various grades and sizes has been entered on the account sales.

REPORTS TO GROWERS.

An account sales (Forms No. 5 and 5A) should be made out for each variety contributed by a grower. Posting the number of boxes to this form must be done before closing the pools. The form furnishes a complete record of the quality and quantity of fruit contributed by the various growers to a given pool. It is made in duplicate, the original copy being filed in the office and the duplicate serving as a statement for the grower.

To facilitate posting at the time of closing the pools, account sales are arranged in alphabetical order according to varieties, and then numbered. For reference purposes a recapitulation of the total number of boxes in the pool, classified according to grades and sizes, should be prepared and filed on top of the growers' distribution sheets. This permits the contents of the pool to be seen at a glance.

The average prices shown on the account sales are computed after deducting all selling and handling charges from the gross sales of the fruit. Such items as packing, building and equipment deductions, or part payments on capital stock notes are charged to the grower's ledger account. Account sales should in all cases be forwarded to growers immediately following the closing of each pool.

CONDENSED OPERATING SCHEDULE.

A condensed analysis of the application of the special forms devised for sampling apples by weight, together with a brief outline of the practices involved arranged in the order of their intended use, follows:

Loose fruit receiving room:

1. Loose fruit unloaded.
2. Gross, tare, and net weight of the fruit, including the weight of the boxes entered on loose fruit receipt.
3. Sample selected from the load.
4. Sample sent to test room, remainder of load trucked to packing room.
5. Duplicate loose fruit receipts sent into office daily, original given to the grower, triplicate attached to test box.

Sample test room:

1. Sample sorted and weighed, classified as to grades and sizes.
2. Test weight computations entered on duplicate sampled-fruit receipt.
3. Test weights entered on sampled-fruit receipt.
4. Loose fruit receipt number entered on sampled-fruit receipt.
5. Sampled-fruit receipts and triplicate loose fruit receipts sent into office daily.

Office:

1. Sampled-fruit receipts and loose fruit receipts received daily.
2. Numerical order of sampled-fruit receipts and loose fruit receipts checked, then rearranged in alphabetical order. Missing receipts noted.
3. Loose fruit receipts covering a given test withdrawn from temporary file and placed in permanent file.
4. Test clerk's computations checked on duplicate sampled-fruit receipt.
5. Percentage of test determined and noted.
6. Reciprocal of percentage of test determined and noted.
7. Extensions of the total weights made on the sampled-fruit receipt, classified as to grades and sizes.
8. Original copy of sampled-fruit receipts sent to growers, duplicate copy entered on register of sampled-fruit receipts, then placed in permanent file.
9. Register of sampled-fruit receipts arranged in alphabetical order.
10. Sampled-fruit receipts entered daily on register of sampled-fruit receipts.
11. Footings totaled on register of sampled-fruit receipts at the close of the packing season. Weights reduced to boxes.
12. Reconciliation of fruit deliveries sent to growers at the close of the packing season.
13. Account sales arranged according to varieties and numbered.
14. Footings of the register of receipts brought down on the account sales at the close of the packing season.
15. Upon closing pools entries are made on the account sales, setting forth the net average prices of the fruit, classified as to grades and sizes, extensions made in the amount column, duplicate copies sent to the growers, and original copies held in the permanent file.

STATEMENTS AND LEDGER ACCOUNTS.

The various financial statements used in exhibiting the condition of business at the close of the fiscal year, together with a full description of the classified ledger accounts used in recording all business transactions, are set forth in United States Department of Agriculture Bulletin 590, A Classification of Ledger Accounts for Fruit Shipping Organizations.

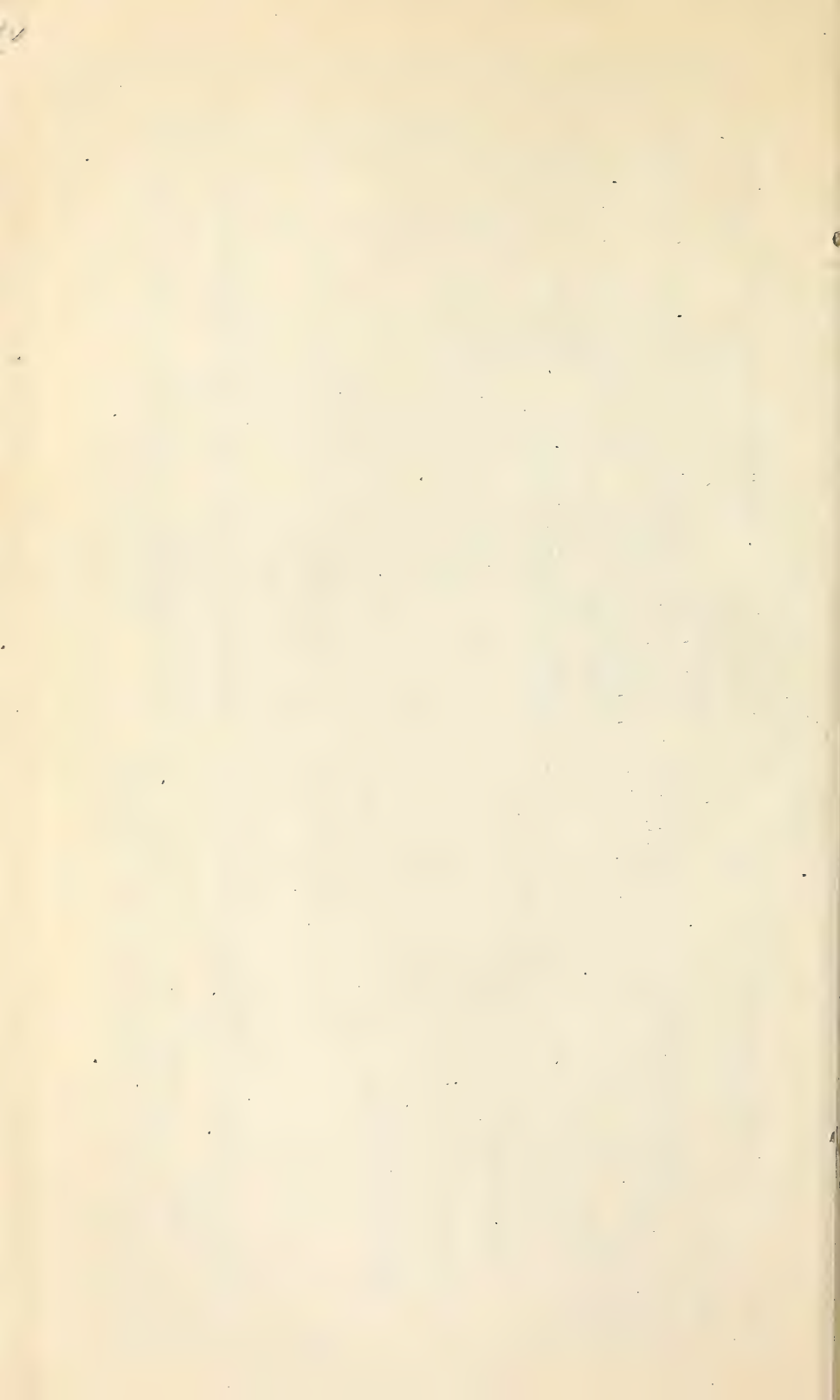
TABLE OF RECIPROCALs.

The reciprocals of the percentage of test, from 2 to 5 per cent (extended to two decimal places), used as multipliers in determining the total weight of the load classified as to grades and sizes, are as follows:

Table of reciprocals.

Per cent test.	Recip- rocals.	Per cent test.	Recip- rocals.	Per cent test.	Recip- rocals.	Per cent test.	Recip- rocals.
2.00	50.00	2.76	36.23	3.52	28.41	4.28	23.36
2.01	49.75	2.77	36.10	3.53	28.33	4.29	23.31
2.02	49.50	2.78	35.97	3.54	28.25	4.30	23.26
2.03	49.26	2.79	35.84	3.55	28.17	4.31	23.20
2.04	49.02	2.80	35.71	3.56	28.09	4.32	23.15
2.05	48.78	2.81	35.59	3.57	28.01	4.33	23.10
2.06	48.54	2.82	35.46	3.58	27.93	4.34	23.04
2.07	48.31	2.83	35.33	3.59	27.85	4.35	23.00
2.08	48.08	2.84	35.21	3.60	27.78	4.36	22.94
2.09	47.85	2.85	35.09	3.61	27.70	4.37	22.89
2.10	47.62	2.86	34.97	3.62	27.62	4.38	22.83
2.11	47.40	2.87	34.84	3.63	27.55	4.39	22.78
2.12	47.17	2.88	34.72	3.64	27.47	4.40	22.73
2.13	46.95	2.89	34.60	3.65	27.40	4.41	22.68
2.14	46.73	2.90	34.48	3.66	27.32	4.42	22.62
2.15	46.51	2.91	34.36	3.67	27.25	4.43	22.57
2.16	46.30	2.92	34.25	3.68	27.18	4.44	22.52
2.17	46.08	2.93	34.13	3.69	27.10	4.45	22.47
2.18	45.87	2.94	34.01	3.70	27.03	4.46	22.42
2.19	45.66	2.95	33.90	3.71	26.95	4.47	22.37
2.20	45.45	2.96	33.78	3.72	26.88	4.48	22.32
2.21	45.24	2.97	33.67	3.73	26.81	4.49	22.27
2.22	45.04	2.98	33.56	3.74	26.74	4.50	22.22
2.23	44.84	2.99	33.44	3.75	26.66	4.51	22.17
2.24	44.64	3.00	33.33	3.76	26.60	4.52	22.12
2.25	44.44	3.01	33.23	3.77	26.53	4.53	22.08
2.26	44.25	3.02	33.11	3.78	26.45	4.54	22.03
2.27	44.05	3.03	33.00	3.79	26.38	4.55	21.98
2.28	43.86	3.04	32.90	3.80	26.32	4.56	21.93
2.29	43.67	3.05	32.79	3.81	26.25	4.57	21.88
2.30	43.48	3.06	32.68	3.82	26.18	4.58	21.84
2.31	43.29	3.07	32.57	3.83	26.11	4.59	21.79
2.32	43.10	3.08	32.47	3.84	26.04	4.60	21.74
2.33	42.92	3.09	32.36	3.85	25.97	4.61	21.69
2.34	42.74	3.10	32.26	3.86	25.91	4.62	21.65
2.35	42.55	3.11	32.15	3.87	25.84	4.63	21.60
2.36	42.37	3.12	32.05	3.88	25.77	4.64	21.55
2.37	42.19	3.13	31.95	3.89	25.71	4.65	21.50
2.38	42.02	3.14	31.85	3.90	25.64	4.66	21.46
2.39	41.84	3.15	31.74	3.91	25.58	4.67	21.41
2.40	41.67	3.16	31.64	3.92	25.51	4.68	21.37
2.41	41.49	3.17	31.54	3.93	25.45	4.69	21.32
2.42	41.32	3.18	31.44	3.94	25.38	4.70	21.28
2.43	41.15	3.19	31.35	3.95	25.32	4.71	21.23
2.44	40.98	3.20	31.25	3.96	25.25	4.72	21.19
2.45	40.82	3.21	31.15	3.97	25.19	4.73	21.14
2.46	40.65	3.22	31.05	3.98	25.13	4.74	21.10
2.47	40.49	3.23	30.96	3.99	25.06	4.75	21.05
2.48	40.32	3.24	30.86	4.00	25.00	4.76	21.01
2.49	40.16	3.25	30.77	4.01	24.93	4.77	20.97
2.50	40.00	3.26	30.67	4.02	24.87	4.78	20.92
2.51	39.84	3.27	30.58	4.03	24.81	4.79	20.88
2.52	39.68	3.28	30.49	4.04	24.75	4.80	20.83
2.53	39.53	3.29	30.40	4.05	24.69	4.81	20.79
2.54	39.37	3.30	30.30	4.06	24.63	4.82	20.75
2.55	39.22	3.31	30.21	4.07	24.57	4.83	20.71
2.56	39.06	3.32	30.12	4.08	24.51	4.84	20.66
2.57	38.91	3.33	30.03	4.09	24.45	4.85	20.62
2.58	38.76	3.34	29.94	4.10	24.40	4.86	20.58
2.59	38.61	3.35	29.85	4.11	24.33	4.87	20.53
2.60	38.45	3.36	29.76	4.12	24.27	4.88	20.50
2.61	38.31	3.37	29.67	4.13	24.22	4.89	20.45
2.62	38.17	3.38	29.58	4.14	24.16	4.90	20.41
2.63	38.02	3.39	29.50	4.15	24.10	4.91	20.37
2.64	37.88	3.40	29.41	4.16	24.04	4.92	20.32
2.65	37.74	3.41	29.33	4.17	23.98	4.93	20.28
2.66	37.60	3.42	29.24	4.18	23.93	4.94	20.24
2.67	37.45	3.43	29.15	4.19	23.87	4.95	20.20
2.68	37.31	3.44	29.06	4.20	23.81	4.96	20.16
2.69	37.17	3.45	28.98	4.21	23.76	4.97	20.12
2.70	37.04	3.46	28.90	4.22	23.70	4.98	20.08
2.71	36.90	3.47	28.82	4.23	23.64	4.99	20.04
2.72	36.76	3.48	28.74	4.24	23.59	5.00	20.00
2.73	36.63	3.49	28.66	4.25	23.53		
2.74	36.50	3.50	28.57	4.26	23.47		
2.75	36.36	3.51	28.49	4.27	23.42		

B. of M. Form 1		LOOSE FRUIT RECEIPT		No.
Received on Account of		Name		
		192		
The following is received in open boxes, for packing without guaranty from the undersigned as to the variety, grade, or weight of the fruit.				
Number of Boxes	VARIETY	Gross Weight		
		TARE		
		Net Weight Boxes Incl.		
Number Boxes in Test				
Truck Ticket No.		Hauled by		
Remarks:				
		Name		
Entered by		Per		



VARIETY _____

192

VARIETY _____

192

[illegible]

Mr.
BELOW IS A STATEMENT
OUR RECORDS. KINDLY C

[illegible]

B. of M. Form 3
REGISTER OF
SAMPLED-FRUIT RECEIPTS

Mr.

192

[illegible]

